

Comparisons of Job Characteristics

Focus Occupation: [Architectural and Engineering Managers \(11-9041\)](#)

Associated Occupation: [Mining and Geological Engineers, Including Mining Safety Engineers \(17-2151\)](#)

[Compare Knowledge](#)

[Compare Skills](#)

[Compare Abilities](#)

[Compare Detailed Work Activities](#)

[Compare Tools and Technologies](#)

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

Knowledge

Similarity of Focus Occupation to Associated Occupation: 87

Focus Occupation: Architectural and Engineering Managers (11-9041)

Associated Occupation: Mining and Geological Engineers, Including Mining Safety Engineers (17-2151)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation
Engineering and Technology	5.7	20.6	23.2	> Current knowledge level is likely sufficient
Design	5.2	16.6	19.0	> Current knowledge level is likely sufficient
Mathematics	9.2	15.3	17.4	> Current knowledge level is likely sufficient
Production and Processing	6.0	12.6	10.7	< Expanded education and/or training may be required
Law and Government	5.9	12.5	8.6	<< Extensive education and/or training may be required
Physics	4.3	11.4	13.0	> Current knowledge level is likely sufficient
Public Safety and Security	6.9	10.9	10.0	0 Current knowledge level may be sufficient
Building and Construction	4.0	10.7	10.7	0 Current knowledge level may be sufficient
Chemistry	4.8	10.2	6.6	<< Extensive education and/or training may be required
Geography	3.9	10.2	5.7	<< Extensive education and/or training may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Skills

Similarity of Focus Occupation to Associated Occupation: 81

Focus Occupation: Architectural and Engineering Managers (11-9041)

Associated Occupation: Mining and Geological Engineers, Including Mining Safety Engineers (17-2151)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation
Judgment and Decision Making	9.4	15.1	12.5	< A higher skill level may be required
Complex Problem Solving	9.1	14.8	13.0	< A higher skill level may be required

Mathematics	6.2	13.9	11.7	<	A higher skill level may be required
Monitoring	9.9	13.9	11.9	<	A higher skill level may be required
Systems Analysis	6.5	13.0	10.7	<	A higher skill level may be required
Systems Evaluation	6.4	12.7	10.7	<	A higher skill level may be required
Operations Analysis	5.0	11.5	13.9	>	Skill level is likely sufficient
Management of Financial Resources	3.3	9.8	9.7	0	Current skill level may be sufficient
Management of Material Resources	3.7	9.7	9.2	0	Current skill level may be sufficient
Programming	2.2	8.3	2.1	<<	Extensive development of skills in this area may be required
Technology Design	2.6	7.3	3.3	<<	Extensive development of skills in this area may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Abilities

Similarity of Focus Occupation to Associated Occupation: 96

Focus Occupation: Architectural and Engineering Managers (11-9041)

Associated Occupation: Mining and Geological Engineers, Including Mining Safety Engineers (17-2151)

Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Oral Comprehension	12.5	16.3	15.0	0	Current ability level may be sufficient
Written Comprehension	11.0	15.7	15.2	0	Current ability level may be sufficient
Deductive Reasoning	10.6	15.5	13.9	<	Some improvement in abilities may be required
Written Expression	9.8	15.1	13.8	0	Current ability level may be sufficient
Problem Sensitivity	11.1	14.8	13.9	0	Current ability level may be sufficient
Information Ordering	9.9	14.4	12.0	<	Some improvement in abilities may be required
Inductive Reasoning	10.2	14.1	12.5	<	Some improvement in abilities may be required
Category Flexibility	9.0	13.8	11.4	<	Some improvement in abilities may be required
Mathematical Reasoning	6.3	12.8	13.3	0	Current ability level may be sufficient
Visualization	7.5	12.4	10.1	<	Some improvement in abilities may be required
Flexibility of Closure	7.8	12.2	7.9	<<	Extensive improvement in abilities may be required
Fluency of Ideas	7.6	11.8	10.1	<	Some improvement in abilities may be required
Speed of Closure	5.9	8.7	5.2	<<	Extensive improvement in abilities may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common

Similarity of Focus
Occupation to Associated
Occupation: 84

Focus Occupation: Architectural and Engineering Managers (11-9041)

Associated Occupation: Mining and Geological Engineers, Including Mining Safety Engineers (17-2151)

Work Activities	Exclusivity of Activity
Adhere to safety procedures	12
Advise clients or customers	19
Advise clients regarding engineering problems	67
Analyze project proposal to determine feasibility, cost, or time	69
Assign work to staff or employees	30
Bid engineering, construction or extraction projects	80
Communicate technical information	4
Conduct land surveys	81
Conduct topographical surveys	89
Confer with engineering, technical or manufacturing personnel	25
Coordinate engineering project activities	71
Delegate authority for engineering activities	73
Develop policies, procedures, methods, or standards	21
Develop safety regulations	74
Direct and coordinate activities of workers or staff	3
Direct and coordinate construction of mine shafts or tunnels	89
Direct personnel in support of engineering activities	74
Evaluate costs of engineering projects	70
Evaluate engineering data	60
Explore for oil or gas	92
Lead teams in engineering projects	73
Perform statistical analysis in physical science or geological research	71
Plan testing of engineering methods	72
Prepare reports	8
Prepare technical reports or related documentation	22
Read blueprints	10
Read technical drawings	7
Resolve engineering or science problems	46
Understand engineering data or reports	48
Use intuitive judgment for engineering analyses	72
Use long or short term production planning techniques	74
Use pollution control techniques	62
Use project management techniques	47
Use scientific research methodology	21
Use technical regulations for engineering problems	61
Write business project or bid proposals	48

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Tools and Technologies that Both Occupations Have in Common

Similarity of Focus
Occupation to Associated
Occupation: 69

Focus Occupation: Architectural and Engineering Managers (11-9041)

Associated Occupation: Mining and Geological Engineers, Including Mining Safety Engineers (17-2151)

Tools and Technologies	Exclusivity
Business function specific software	1
Computer data input devices	2
Computers	1
Content authoring and editing software	1
Data management and query software	1
Finance accounting and enterprise resource planning ERP software	2
Industry specific software	1

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.